

What is claimed is:

1. An FDS/DF equalizer using absolute value calculation comprising:

5 a feed-forward filter receiving and filtering a sampled signal;
a feed-back filter filtering a restored data;
a subtractor obtaining a difference between signals respectively filtered by
the feed-forward filter and the feed-back filter; and
a detector means receiving the subtracted signal and detecting a data
10 using absolute value calculation.

2. The equalizer of claim 1, wherein the feed-forward filter changes
the sampled signal to a causal signal.

15 3. The equalizer of claim 1, wherein the feed-back filter removes an
intersymbol interference of the causal signal.

4. The equalizer of claim 1, wherein the detector means comprises:
a plurality of branch metric calculating means obtaining an error between
20 the subtracted signal and a reference signal;
an adder adding the values outputted from the plurality of branch metric
calculating means;
a path metric memory means storing the added value;
a minimum value calculating means calculating a minimum value of the
25 accumulated values; and

a comparator comparing the minimum values and outputting the most minimum value.

5 5. The equalizer of claim 4, wherein the plurality of branch metric calculating means are sequentially delayed as deep as τ from '0', respectively.

6. The equalizer of claim 4, wherein the branch metric operating means comprises:

10 a plurality of absolute value calculating means obtaining an absolute value of the difference between the subtracted value and the reference signal; and

 a demultiplexer demultiplexing the signal outputted from the absolute value calculating means.

15 7. An FDTS/DF equalizer using absolute value calculation of a system restoring a data signal passing through a channel comprising:

 an equalizer making a sampled data signal to be a causal signal and removing an intersymbol interference of the causal signal; and

 a detector detecting an original data from the signal without the intersymbol interference by using absolute value calculation.

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8. The equalizer of claim 7, wherein the detector comprises:

 a plurality of branch metric calculating means obtaining an error between the subtracted signal and the reference signal;

25 an adder for adding values outputted from the plurality of branch metric calculating means;

a path metric memory means storing the added value;
a minimum value calculating means calculating a minimum value of the accumulated values; and
a comparator comparing the minimum values and outputting the most
5 minimum value.

9. The equalizer of claim 8, wherein the plurality of branch metric calculating means are sequentially delayed as deep as τ from '0', respectively.

10. The equalizer of claim 8, wherein the branch metric calculating means comprises:

a plurality of absolute value calculating means obtaining an absolute value of a difference between the subtracted value and the reference signal; and

a demultiplexer demultiplexing a signal outputted from the absolute value
15 calculating means.

11. A data restoring method of an FDTs/DF equalizer using absolute value calculation comprising the steps of:

obtaining a difference between signals respectively filtered by a feed-
20 forward filter and a feed-back filter;

computing an error through absolute value calculation between the signal difference and a reference signal;

delaying the error as deep as τ and adding them;

storing the added results; and

25 obtaining a minimum value of the stored error values and obtaining a path

according to the minimum value.

12. The method of claim 11, wherein, in the path obtaining step, only the branch metric containing a selected path is left while the remaining branch
- 5 metrics are discarded.

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